

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/032,972	KROTZ ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Patrick T. Lewis	1623	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Remand from the Board dated October 2, 2006.
2. ☒ The allowed claim(s) is/are 1-42.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

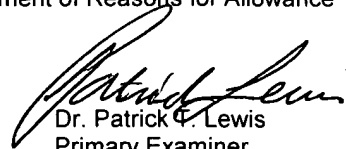
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
Dr. Patrick T. Lewis  
Primary Examiner  
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***Reasons for Allowance***

1. The following is an examiner's statement of reasons for allowance: Ravikumar US 5,705,621 (Ravikumar) is the closest related prior art. Ravikumar teaches methods for the preparation of oligomeric compounds containing monomeric subunits that are joined by a variety of linkages, including phosphite, phosphodiester, phosphorothioate, and/or phosphorodithioate linkages (columns 9-10 and 14). Ravikumar teaches: a) providing a solid support, b) attaching a 5'-O-protected nucleoside to the solid support, c) deprotecting the 5'-hydroxyl of the nucleoside with a deprotecting reagent comprising a protic acid in a solvent, d) reacting the deprotected 5'-hydroxyl with an 5'-protected activated phosphorus compound to produce a covalent linkage, e) oxidizing or sulfurizing the covalent linkages, f) repeating steps c-e, and g) cleaving the oligomer from the solid support. Ravikumar differs from the instantly claimed invention in that Ravikumar does not teach or suggest the use of the instantly employed deprotecting reagent of step c). Ravikumar teaches the use of a dichloromethane (DCM) solution of 2% dichloroacetic acid (DCA) for deprotecting the 5'-hydroxyl groups. The instantly employed deprotecting reagent comprises a protic acid in a solvent which consists essentially of an aromatic solvent, an alkyl aromatic solvent, a halogenated aromatic solvent, a halogenated alkyl aromatic solvent, or an aromatic ether solvent. DCM cannot be used as a solvent in the instant invention because it would have a material effect upon the basic and novel characteristic(s) of the invention. The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or

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steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. As disclosed by applicants on page 15 of the instant specification, the use of halogenated alkyl solvents is greatly disadvantageous because they are not easily disposed of and therefore expensive to use.

Although the use of DCA in toluene (deprotecting agent) for removing dimethoxytrityl protecting groups during the synthesis of branched nucleic acids was known at the time of the invention, one of ordinary skill in the art would not have found the use of DCA/toluene obvious in the synthesis of linear oligomers. See Horn et al. Nucleic Acids Research (1989), Vol. 17, pages 6959-6967 (Horn1). Horn1 teaches that in attempts to synthesize branched DNA, the deprotection of multiple intramolecular dimethoxytrityl functions with standard DCA/CH<sub>2</sub>Cl<sub>2</sub> was found to be difficult. One of ordinary skill in the art at the time of the invention would readily recognize that the physical and chemical properties of linear and branched oligomers differ. Horn1 does not teach or suggest that the DCA/toluene agent would be effective in the removal of protecting groups in linear oligomers.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Contacts**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick T. Lewis whose telephone number is 571-272-0655. The examiner can normally be reached on Monday - Friday 10 am to 3 pm (Maxi Flex).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Dr. Patrick T. Lewis  
Primary Examiner  
Art Unit 1623

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